

PROPOSAL OF:

LIGHT OPERATED SWITCH

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ABSTRACT OF LIGHT OPERATED SWITCH

For the final project we decided to continue our planned to build the '*light operated switch*'. Light operated switches not new ideas, but neither are they the easiest items to purchase ready-made. Originally, this unit built to switch, on the outside Christmas lights when it became dark. It will have other uses in mind. One such might be as a security porch light controller. The light level required for the unit to switch on or off is fixed, but since this is set by a single resistor value can easily be altered. A degree of hysteresis is included to reduce the chance of the unit being affected by the light it controlling. Reasonably careful siting though, will still be necessary to prevent the controlled light from directly illuminating the sensor. The purpose for this project is to identify that when the LDR is in the dark, it will directly connect to the main circuit so it will switch on the lamp and when it is not in the dark side the circuit will switch off the light. When the LDR is in the dark, the internal resistor in LDR decreases as low as 100Ω ; the light will light up. But when the LDR is not in the dark, the resistance will exceed to $10M\Omega$; the light in the switch off condition. In this project, we used '4093 CMOS Quad NAND Gate' it is the Schmitt trigger IC with two input and combined in a NAND configuration. The PCB is designed to fit behind a single electrical blanking plate, with a hole to allow light to reach the photocell. This plate can be fitted to a single 25 mm surface box, giving a cheap and tidy wall mounting case. For original purpose, the unit was placed on a window; with the photocell facing outwards.

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OBJECTIVES

Main objective in this project is to:

- i. Fulfill the desired subject KEU380 (3 credit hour).
- ii. From this project also, study and learn more about the function of each component. If we just study about theory only, we may not understand how to work it out. So, when we did this project, we can add more knowledge about each component and how to makes it function.
- iii. We also want to get an experience for our future especially in designing circuit and analysis circuit. When we go in job scope, we hope from this project, it will help us more easier to get a job.
- iv. We also want to practice everything that we had learns since part I until now.
- v. Other that, we want to learn how to analyze and to simulate the circuit.
- vi. We also know how to design PCB layout, to install the component correctly in the place.
- vii. Analyze and makes troubleshooting for the problems that facing when try to running the project that we makes.
- viii. Suggest a suitable solution to overcome the problem that we facing.